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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/582,309

06/09/2006

Hisashi Ohtsuki

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EXAMINER

JOYCE, WILLIAM C

ART UNIT

PAPER NUMBER

3656

MAIL DATE

DELIVERY MODE

08/31/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/582,309	Applicant(s) OHTSUKI, HISASHI	
	Examiner William C. Joyce	Art Unit 3656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the amendment filed August 5, 2010 for the above identified patent application.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 7-9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,603,554 (US '554) in view of Japanese Reference 57-194805 (JP '805).

Referring to Figure 1, US '554 discloses a vehicle wheel bearing apparatus structured as a unit of a wheel hub and a double row rolling bearing comprising: an inner member including a wheel hub integrally formed with a wheel mounting flange (36) on one end, an inner circumferential surface of the wheel hub (32) is formed with a serration, an axially extending cylindrical portion (48) with a pair of inner raceway surfaces; one or more inner rings being press-fit onto the cylindrical portion of the wheel hub, the one or more inner rings are formed with at least one of the inner raceway surfaces on its outer circumferential surface; an outer member (62) is arranged around the inner member, the outer member is formed with double row outer raceway surfaces on its inner circumferential

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surface opposite to the inner raceway surfaces; double row rolling elements (70) are arranged between the inner and outer raceway surfaces of the inner member and the outer member.

US '554 does not disclose seals for sealing an annular space of the bearing. It was notoriously known in the art to use seals in vehicle hub arrangements for sealing the bearing from contaminants. For example, the prior art to JP '805 illustrates in Figure 2 a hub arrangement having seals. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the bearings of US '544 with seals, as taught by JP '805, motivation being to prevent contaminants from entering the bearing space.

US '554 does not disclose a partition wall integrally formed on the wheel hub at its outboard side to close a central bore of the wheel hub. The prior art to JP '805 teaches in Figure 2 a wheel hub (21) having a partition wall. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the wheel hub of US '554 with an integrally formed partition wall formed on the wheel hub at its outboard side to close a central bore of the wheel hub, as taught by JP '805, motivation being provide a stronger hub and/or simplify the structure of the drive shaft.

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USP '554 does not disclose the bearings having a cage member. However, it was notoriously known in the art to provide a bearing member with a cage. For example, the prior art device illustrated by applicant in Figure 4 shows a cage member (63) for supporting bearings. Official Notice is taken with respect to providing a cage for a bearing member, since a bearing cage was a well known means for supporting rolling bearings at a predetermined spacing.

3. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,603,554 (US '554) and Japanese Reference 57-194805 (JP '805), as applied to claim 9 above, and further in view of US Patent 7,255,482 (USP '482).

The prior art to USP '554 does not disclose the hub assembly having the claimed hardened surfaces. However, the prior art to USP '482 discloses an outer circumferential region of the wheel mounting flange from an inboard base side to the axially extending cylindrical portion is hardened by high frequency induction hardening to have a surface hardness of about 54-64 HRC, and the caulked portion remains unhardened to have a surface hardness of 25 HRC or less after forging. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the bearing device of USP '554 with the claimed surfaces, as taught by USP '482, motivation being to provide hardened wear resistant hub surfaces while prevent cracking of the caulked portion during manufacture.

Response to Arguments

4. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Joyce whose telephone number is (571) 272-7107. The examiner can normally be reached on Monday - Thursday 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William C. Joyce/
Primary Examiner, Art Unit 3656